

5 radiation into a visible light spectrum with a high spatial  
6 accuracy;

7 a photocathode, disposed within the camera housing along the  
8 optical path to convert the converted radiation into a stream of  
9 electrons representative of the image-bearing radiation;

10 an image amplifier disposed in the stream of electrons such  
11 that image amplifier electrostatically accelerates the stream of  
12 electrons, and an amplified detector disposed after the image  
13 amplifier and, upon input of the stream of electrons, being adapted  
14 to generate secondary electrons to further amplify the image  
15 represented thereby such that the amplified detector then converts  
16 secondary electrons into an electronic signal representative of the  
17 image.

18 44. (new) A radiation imaging system, comprising a radiation source  
19 that projects radiation towards an object, thereby creating  
20 image-bearing radiation from the object towards the imaging system,  
21 and  
22

23 an imaging system, which according to claim 43 has a solid  
24 radiation bearing detector comprising a scintillator which  
25 efficiently converts the image-bearing radiation into a visible  
26 light spectrum.

27 45. (new) An imaging system, which defines an optical path therein,  
28 for capturing an image from the image-bearing radiation, the  
29 imaging system comprising a solid radiation bearing detector

4 disposed in the optical path, comprising a very thin, about 50 to  
5 100 micro-meter thick, and very heavy scintillator with a density  
6 greater than 6, which efficiently converts the image-bearing  
7 radiation into a visible light spectrum with a high spatial  
8 accuracy;

9 a photocathode, disposed within the camera housing along the  
10 optical path to convert the converted radiation into a stream of  
11 electrons representative of the image-bearing radiation;

12 an image amplifier disposed in the stream of electrons such  
13 that image amplifier electrostatically accelerates the stream of  
14 electrons, and an amplified detector disposed after the image  
15 amplifier and, upon input of the stream of electrons, being adapted  
16 to generate secondary electrons to further amplify the image  
17 represented thereby such that the amplified detector then converts  
18 secondary electrons into an electronic signal representative of the  
19 image.

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47 that projects radiation towards an object, thereby creating  
48 image-bearing radiation from the object towards the imaging system,  
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10 accuracy.

1 ~~47~~<sup>47</sup>.(new) The imaging system according to claim ~~46~~<sup>46</sup>, wherein the  
2 image amplifier is adapted to selectively electronically de-magnify  
3 the image-bearing radiation and thus adjust a resolution of the  
4 image.

1 ~~48~~<sup>48</sup>.(new) The imaging system according claim ~~47~~<sup>47</sup>, wherein the image  
2 amplifier is dynamically selectable to adjust de-magnification so  
3 as to govern an area of an object to be imaged.

1 ~~49~~<sup>49</sup>.(new) The radiation imaging system according to claim ~~46~~<sup>46</sup>,  
wherein the radiation source is adapted to electronically shift  
between a plurality of dynamically-selectable positions such that  
the image transmitted by the image-bearing radiation changes for  
each of the plurality of positions.

1 ~~50~~<sup>50</sup>.(new) The radiation imaging system according to claim ~~49~~<sup>49</sup>,  
2 wherein the radiation source electronically shifts between two  
3 dynamically selectable positions to generate stereo pairs of  
4 three-dimensional images and to select the line-of-view of an  
5 object of interest to bypass other shadowing objects.

1 ~~51~~<sup>51</sup>.(new) The radiation imaging system according to claim ~~49~~<sup>49</sup>,  
2 wherein the radiation source is continuously deflected producing a  
3 plurality of radiation shadows that can be interactively "focussed"

4 to various levels within the object.

1 <sup>52</sup>  
1 ~~52~~. (new) The radiation imaging system according to claim <sup>49</sup>~~48~~,  
2 wherein the radiation source projects divergent rays of the  
3 radiation and has a spot size smaller than a resolution of the  
4 radiation imaging system.

1 <sup>53</sup>  
1 ~~53~~. (new) The imaging system according to claim <sup>45</sup>~~45~~, further  
2 comprising:

3 filtering means for filtering the image-bearing radiation  
4 consecutively through a plurality of filters thus creating a  
5 plurality of sub-images;

6 analysis means to distinguish between the changes of  
7 sub-images due to the filtering of the radiation and due to the  
8 object motion during and between the exposures; and

9 correcting means for correcting the changes of the plurality  
10 of sub-images due to the object motion and correlating the  
11 plurality of sub-images into a color image.

1 <sup>54</sup>  
1 ~~54~~. (new) The radiation imaging system according to claim <sup>46</sup>~~46~~,  
2 wherein the imaging system corrects for motion in a color image  
3 generated by capturing two or more consecutive sub-images, the  
4 imaging system further comprising,

5 calculation means for calculating the shift vector between the  
6 two or more consecutive sub-images, using lists of characteristic  
7 quantities computed from the images;

8 mapping means for mapping a coordinate transformation of a  
9 first image into a second image of the two or more consecutive  
10 sub-images;

11 computing means for computing corresponding transformations of  
12 the two or more consecutive sub-images by interpolation; and

13 reconstruction means for reconstructing the image from the two  
14 or more consecutive sub-images.

55  
A 1 ~~55~~.(new) The radiation imaging system according to claim ~~54~~<sup>54</sup>,  
2 further comprising processing means for differentiating between  
3 foreground and non-uniform background in the plurality of radiation  
4 shadows such that the non-uniform background can be subtracted from  
5 the image.

56  
1 ~~56~~.(new) The radiation imaging system according to claim ~~55~~<sup>55</sup>,  
2 wherein the processing means is adapted to replace one background  
3 with a second background.

57  
1 ~~57~~.(new) The imaging system according to claim ~~45~~<sup>45</sup>, wherein the  
2 amplified detector has a radiation-stable "dead layer" created by  
3 ion implantation.

58  
1 ~~58~~.(new) The imaging system according to claim ~~46~~<sup>46</sup>, further  
2 comprising optic means disposed within the camera housing for  
3 collecting the image-bearing radiation and defining the optical  
4 path, where the optic means is integral with the scintillator.

59

1 59.(new) The radiation imaging system according to claim <sup>46</sup>~~46~~,  
2 wherein the scintillator has a density of at least 7.5 grams per  
3 cubic centimeter.

60

1 60.(new) The imaging system according to claim <sup>45</sup>~~45~~, comprising  
2 a solid radiation bearing detector which is a flexible optic  
3 light guide system made of many tiny about 5 micro-meter diameter  
4 fibers, and a light source thereby creating image bearing radiation  
5 from the reflected light from the object;

6 a photocathode which converts the radiation bearing  
7 light, reflected from object and transmitted through the fibre  
8 optic light guide system into streams of electrons, which can be  
9 gated according to their arrival time at the high voltage  
10 electrodes;

11 an image amplifier disposed in the stream of electrons such  
12 that the image amplifier electrostatically accelerates or  
13 decelerates the stream of electrons according to their arrival  
14 time; and

15 an amplified detector disposed after the image amplifier and,  
16 upon input of the stream of electrons, being adapted to generate  
17 secondary electrons to further amplify the image represented  
18 thereby such that the amplified detector then converts secondary  
19 electrons into an electronic signal representative of the image.

61

1 61.(new) The imaging system according to claim <sup>60</sup>~~60~~, wherein the

2 photocathode is fabricated of gallium-arsenide, which, with the  
3 scintillator removed, converts the infrared radiation bearing  
4 light, reflected from the object and transmitted through the fibre  
5 optic fight guide system, into streams of electrons, which are  
6 gated according to their arrival time at the high voltage  
7 -electrodes, to analyze the time dependent images at the detector,  
8 after an initial flash from the light source has been emitted and  
9 reflected.

62 (new) The imaging system according to claim <sup>60</sup>~~60~~, wherein the  
image amplifier is adapted to selectively electronically magnify  
the image-bearing radiation as measured at the detector and thus  
adjust a resolution of the image.

63 (new) The imaging system according to claim <sup>62</sup>~~62~~, wherein the  
image amplifier is dynamically selectable to adjust magnification  
so as to govern an area of an object to be imaged.

64 (new) The imaging system according to claim <sup>45</sup>~~45~~, with the  
scintillator removed, further comprising:

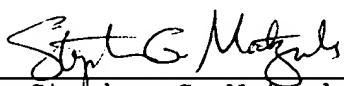
filtering means for filtering the image-bearing radiation  
consecutively through a plurality of wavelength filters which  
allows only light within preselected ranges of wavelengths to pass,  
so that a "colored" image can be formed using these sub-images of  
different wavelengths, analysis means to distinguish between the  
changes of sub-images due to the filtering of the fight of

9 different wavelengths and due to the object motion during and  
10 between the exposures; and correcting means for correcting the  
11 changes of the plurality of sub-images due to the object motion and  
12 correlating the plurality of sub-images into a color image.

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Applicant, having amended the claims, believes that the present application is in condition for allowance. Applicant respectfully requests reconsideration and allowance of the present application. The Examiner is invited to call the Applicant's undersigned attorney should he feel that such a call would further the prosecution of the present application.

Respectfully submitted,  
Min Chen, et al.

  
By Stephen G. Matzuk, Reg. No. 29,328  
P. O. Box 767  
Boston, MA 02102  
(617) 248 9757

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